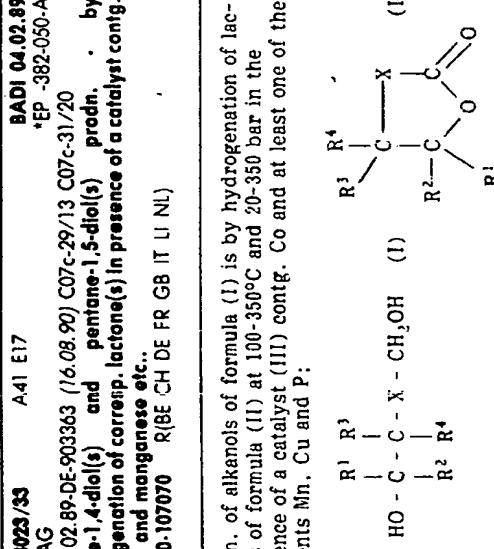


90-248023/33	A41 E17	BADI 04.02.89 *EP -382-050-A	A(1-E14), E(10-E4B, 10-E4C) N(2-D, 3-D, 3-E, 4-B)
BASF AG 04.02.89-DE-903363 (16.08.90) C07c-29/13 C07c-31/20 Butene-1,4-diol(s) and pentane-1,5-diol(s) prodn. by hydrogenation of correps. lactone(s) in presence of a catalyst contg. cobalt and manganese etc.. C90-107070 R(BE) CH DE FR GB IT LI NL			ADVANTAGE Use of (III) enables the prodn. of (1) in good yield even at temps. in the lower part of the above temp. and pressure ranges; prior-art catalyst present problems w.r.t. toxic effluent disposal (high-Cr catalysts), radioactive waste (¹³⁷ h- contg. catalysts) or low selectivity.
			MORE SPECIFICALLY (III) contains Co and at least two of the elements Mn, Cu, P and Mo or (III) contains Co and at least three of the elements Mn, Cu, P, Mo and Na; at least 40 wt. % of the active catalyst material consists of Co, pref. with up to 10 wt. % Mn, up to 10 wt. % P and up to 1 wt. % Na as other active compo- nents, esp. pref. 40-80 wt. % Co, 3-7 wt. % Mn, 0.1-3 wt. % P and 0.01-0.5 wt. % Na, or with up to 10 wt. % Mn, up to 30 wt. % Cu, up to 5 wt. % Mo, up to 10 wt. % P and up to 1 wt. % Na, esp. pref. 40-60 wt. % Co, 3-7 wt. % Mn, 0.1-3 wt. % P, 12-20 wt. % Cu, 0.5-5 wt. % Mo and 0.01-0.5 wt. % Na.
			DETAIL (III) is, e.g. γ -butyrolactone, β -valerolactone or alkyl- substd. derivs. thereof, etc.; (III) is produced by impre- gnating a support (silica, alumina, TiO_2 , active EP-382050-A ⁺



$\text{X} = -\text{CR}^5\text{R}^6-$ or $-\text{CR}^5\text{R}^6-\text{CR}^7\text{R}^8-$; and
 $\text{R}^1-\text{R}^6 = \text{H}, \text{OH},$ or $1-4\text{C}$ alkyl, alkoxy or hydroxyalkyl (R¹,
R², R³, R⁴ and R⁷ can also = 5-7C cycloalkyl).

carbon, zeolite, etc.) with aq. solns. of the corresp. metal salts and P cpds., drying, and calcining at 400-600°C to form metal oxides and phosphoric acid; the oxides are reduced to the corresp. metals with hydrogen before use.

EXAMPLE

A catalyst contg. 52.5 wt.% Co, 5.1 wt.% Mn, 15.3 wt.% Cu, 2.2 wt.% Mo, 1.1 wt.% P and 0.1 wt.% Na was produced as above (extruded pellets, 2mmx3mm dia.) and reduced with hydrogen for 72 hrs. at 310°C and 250 bar; hydrogenation was carried out in a tube reactor at 208°C and 60 bar, using 1212 l/hr. hydrogen; under these conditions γ -butyrolactone was hydrogenated at 98g/hr. (1.14 mol.) to give 51.6g/hr. (0.6 mol.) unchanged starting material, 35.1 g/hr. (0.39 mol.) butane-1, 4-diol, 0.15 g/hr. (0.002 mol.) THF, 0.6g. g/hr. (0.01 mol.) n-butanol, 0.4g/hr. (0.006 mol.) n-propanol and 0.4g/hr. (0.022 mol.) water. (7pp1712HWDwgNol/0).
(G) ISR: US3848003 US3478112 US4141930 DE2321101
EP-304696

FP-382050-A

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